

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON DC 20554

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In the Matter of

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ET DOCKET NO. 94-32

FCC MAIL ROOM

Allocation of Spectrum Below
5 GHz Transferred from Federal
Government Use

To the Commission:

DOCKET FILE COPY ORIGINAL January 3, 1994

REPLY COMMENTS OF THE
AMATEUR TELEVISION NETWORK

Amateur Television Network (ATN) hereby submits its reply comments to the NPRM 94-272.

1, After careful review of the several comments submitted to the NPRM and NOI, ATN has seen the various desires of the commenting parties as to frequency allocation. Most of the comments submitted were of a nature that did not address sharing of the band by incumbent users. Inflight's response to the NPRM was one of the few responses that not only addressed sharing of the spectrum with the Amateur Radio service, but included an engineering report to show how it could coexist with existing and future point to point Amateur Radio microwave relay operations that are used in the 2390-2400 MHz band. In Flight's proposed use of 2390-2400 MHz is in compliance with section 115(a) of the NTIA act of coexistence- with incumbent users (Amateur Radio). Most of the other commenting parties did not meet this requirement and therefore there proposals should be given low priority.

2, ATN is of the opinion that general allocation of the spectrum is in violation of section 303, this experimenting with the spectrum is risky to all parties. Also auctioning the spectrum to the highest bidder will primarily line the pockets of subscriber based systems and not allow public safety, industry and other private users to bid on a equal basis. Most of our local governments are barely able to financially survive now let alone afford to bid against large corporations for the spectrum. ATN suggests that the FCC not allocate general use and eliminate the bidding process from the NPRM.

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3, In response to APCO, Los Angeles County and the Los Angeles County Sheriffs Department requests, ATN is aware of the great need for live video from your helicopters. Your RACES divisions use our Amateur Television Repeaters most of the time during disasters drills and important incidents. In fact our Oat Mt. Repeater is linked to our Santiago peak repeater on 2417 MHz. This gives Los Angeles County 95% coverage in the valleys and basin areas. We have always allowed top priority to the county's use of our repeaters. We even have a special RACES identification for emergency use. Amateurs were the ones who helped you when no other means were available accept video tape.

ATN is concerned that Los Angeles wants to request taking over the same frequencies that we used to help you in the first place. On a technical issue about the need for a 6 MHz channel for video in the 2.4 GHz band. This amount of spectrum would only support VSB AM television. To get the same range on 2.4 GHz that you get on 434 MHz repeater input or 426.25 MHz simplex that you currently use now with usually a 10 watt transmitter in the helicopter you would need a 200 watt transmitter due to the extra 13 dB of path loss as compared to the current system that you use. Even a 25 watt AM transmitter at 2.4 GHz is large and is power hungry due to the class A amplifiers that have to be used for AM. Rotor modulation of the AM signal is more noticeable than using FM. The broadcasters use 10000F9 (FM TV) with a occupied bandwidth of 16 MHz in there ENG helicopters. They use the FM mode to get the required range they need and eliminate most of the rotor modulation. FM modulation has a 20 dB advantage over AM for a snow free picture and a 30 dB advantage to co-channel usage.

Therefore out of the spectrum available for reallocation the 2300-2310 and 2390-2400 MHz bands will not support your request. The 2402-2417 MHz would only give you one channel and the band is full of part 15 devices and has ISM interference. The 4660-4685 MHz band would give you two channels with only slight overlap between the channels. Also having some helicopters with right hand circular polarization and some with left hand this could give you up to four channels by the 30 dB of isolation between the polarizations. Another point with FM is the capture effect and with small directional receive antennas it is possible to send up all of your helicopters if they are spread out over the county. ATN recommends that the FCC give 4660-4685 MHz on an exclusive basis to public safety for aeronautical, fixed and mobile use for video surveillance. ATN has added a 2.4 GHz FM input to some of our repeaters to enhance both our use and public safety use of the Amateur Television Repeaters. We also want to continue to allow our repeaters and frequencies to be used by Los Angeles and all other public service agencies during emergencies. We would also welcome input from the public safety agencies as to how our system could be better positioned or changed to enhance your needs.

One thought comes to mind that would help in making the Amateur Radio video available more quickly and avoid having to fly back to base to pick up an Amateur operator to operate the transmitter. Have the system permanent installed in the helicopter with remote on-off control via the command center's RACES operator position.

4, We are opposed to allow part 15 devices primary status in the band and have interference protection from other users of the band as proposed by Metricom Inc. We do support there position that no high power commercial users be allowed in the 2402-2417 MHz Band as this would only create a repeat of the lower part 15 band. ATN strongly suggests that the Amateur Radio Service be given primary status and part 15 users secondary. As stated in comments from SCRRBA Amateurs will primarily use this spectrum for mountain top relay and should have a low impact on part 15 users. In our comments to the NPRM in December, 1994 we stated that a limited very low power video service for mobile use would be possible to coexist with Amateur and part 15 users.

This new service would have a limit of no more than 100 milliwatts (+20 dBm) effective radiated power and use 10000F9 FM modulation. Typical uses are races and other live events. The license should be limited to video production firms and it would also make an excellent choice for the bomb squad robot. We recommend the limited license to avoid the use of this new service to be exploited and cause interference to Amateur and part 15 users.

The new service should have the same secondary status as part 15. Licensing should be on a regional basis rather than a specific address.

5. In response to the telephone companies requesting All of the 2300-2310 to be paired with 2390-2400 MHz to be used for wireless loop service, ATN is in opposition. They claim that the Amateur use is speculative in that part of the spectrum. Nothing could be further from the truth. As stated by the many Amateur organizations though out this process we have documented our usage. One phone company proposes that the our 2390-2400 MHz systems can move up in the band. Most of our usage of the 2390-2400 MHz band is paired with 2300-2310 MHz excluding the 2404 MHz weak signal window to provide duplex linking of message service of either analog or digital microwave. ATN recommends that if the FCC decides to displace the amateur microwave links with the phone companies wireless loop service that the new service licensees(s) be required to provide all of the equipment necessary to move the Amateur microwave link activity to the 3.3 GHz band at no cost to the Amateur service.

We do acknowledge the need for some limited use of wireless loop service in very remote locations. We would suggest that the wireless loop service if granted spectrum in the 2300-2310 and 2390-2400 band be limited to no more than 3 MHz in each band with the allocations at 2390-2393 MHz and 2307-2310 MHz to have the minimum impact to the Amateur Service. As far as using the service to replace the aging copper plants we are of the opinion that fiber is the best replacement. This would also allow for the phone companies to supply cable TV and interactive multimedia. This additional usage by the fiber should help offset the replacement costs by the increased revenues that the television and multimedia services would give the phone company. ATN suggest that the FCC give full rights to the phone companies to compete with television and multimedia services.

SUMMARY OF SPECTRUM USE

ATN would like to recommend the following proposed usage to minimize impact to the Amateur Radio Service.

- 1, 2300-2307 exclusive to "Amateur"
- 2, 2307-2310 MHz to be paired with 2390-2393 MHz for "Wireless Loop Service" as primary.
- 3, 2393-2398 MHz for "Aeronautical Audio & Video Service" as primary and "Amateur" as secondary.
- 4, 2398-2400 MHz "Amateur and Amateur Satellite" exclusive.
- 5, 2402-2417 MHz "Amateur as primary and part 15 as secondary.
- 6, Consideration be given to very low power video service (+ 20 dBm max ERP) as secondary on the 2402-2417 MHz band. This service is for mobile use by the video production industry and public safety for robots used by the bomb squad.
- 7, 4660-4685 MHz for "Public Safety Video Service" as primary.
- 8, The FCC work with NTIA to reallocate 2310-2390 MHz to the "Amateur Service" as secondary.

Sincerely Michael V. Collins

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